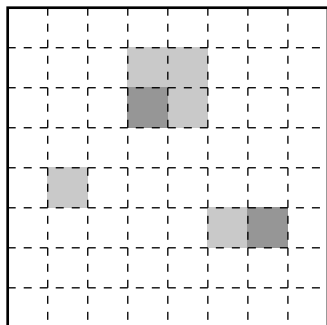
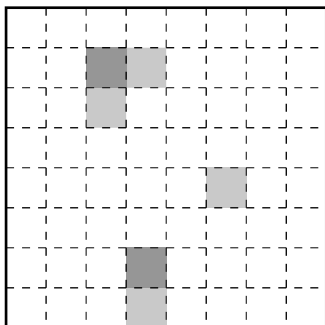


Given:

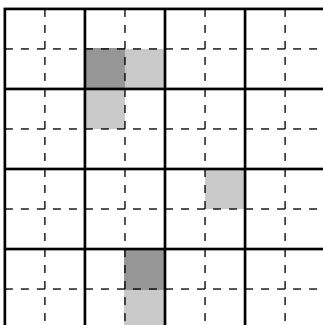


Reference frame

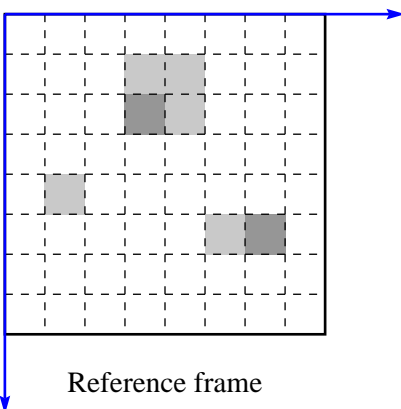


Current frame

1. Partition the current frame to macro blocks, no partitioning on the reference frame



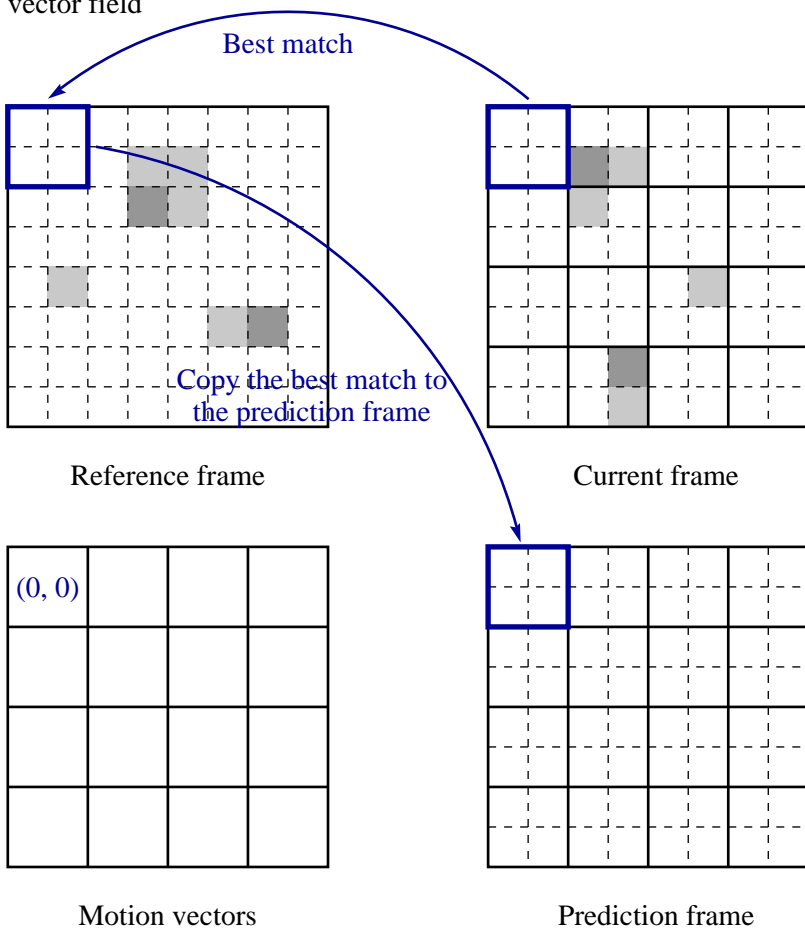
Note that the coordinate system for motion vectors is usually defined as the following, and the motion vector is pointing from the reference position to the current position.



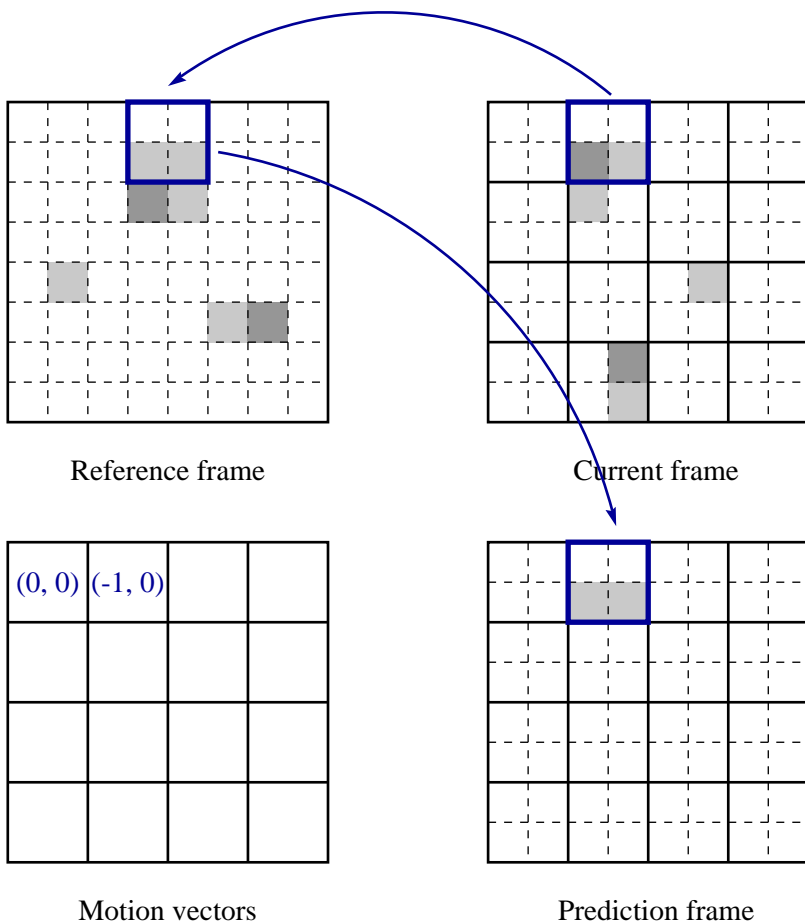
Reference frame

2. For each MB in current frame, find the best match block in the reference frame, and fill in the prediction frame and the motion vector field

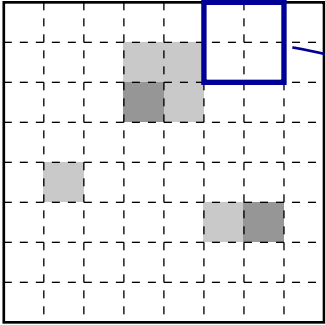
MB # 1



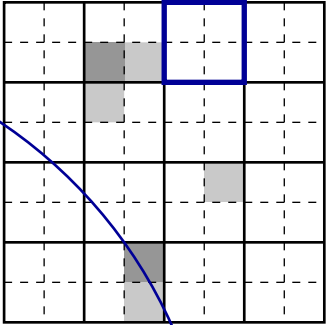
MB # 2



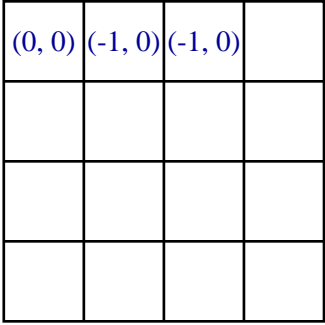
MB # 3



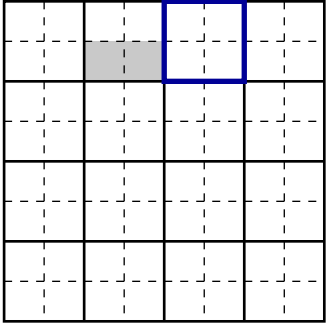
Reference frame



Current frame

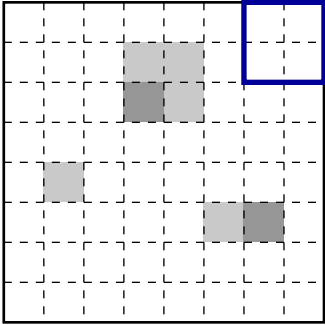


Motion vectors

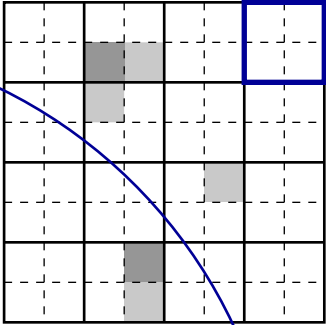


Prediction frame

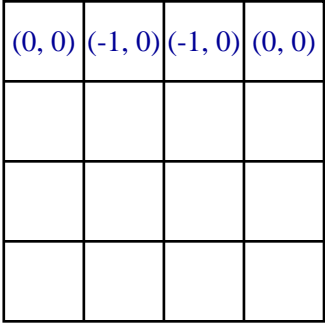
MB # 4



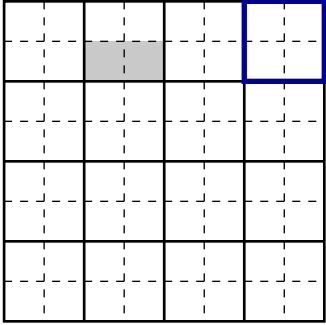
Reference frame



Current frame

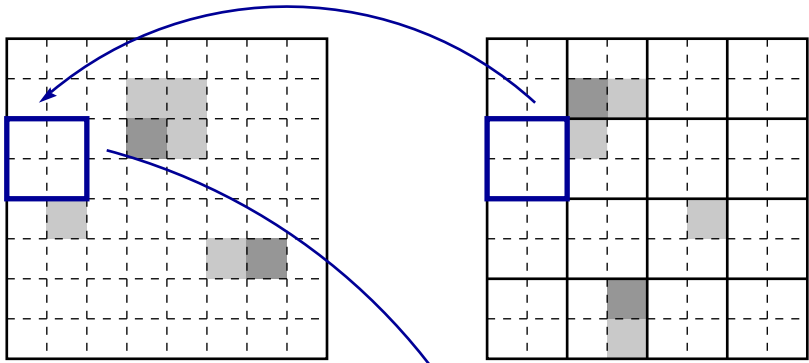


Motion vectors



Prediction frame

MB # 5

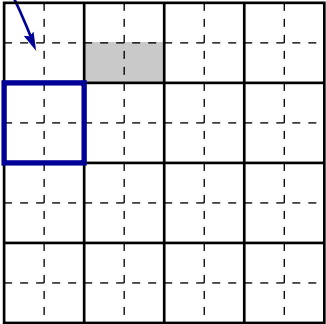


Reference frame

Current frame

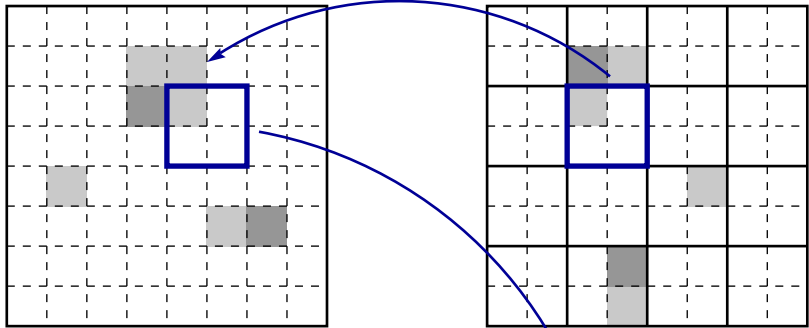
(0, 0)	(-1, 0)	(-1, 0)	(0, 0)
(0, 0)			

Motion vectors



Prediction frame

MB # 6

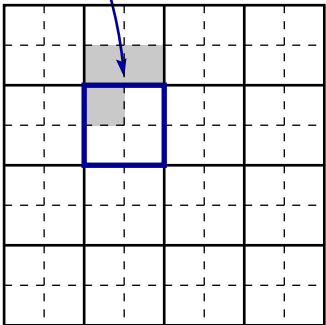


Reference frame

Current frame

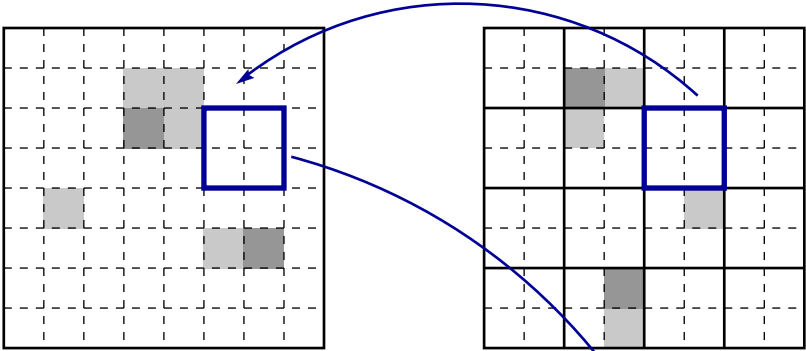
(0, 0)	(-1, 0)	(-1, 0)	(0, 0)
(0, 0)	(-2, 0)		

Motion vectors



Prediction frame

MB # 7

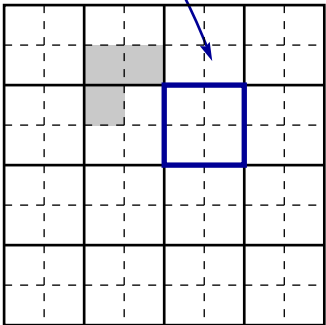


Reference frame

Current frame

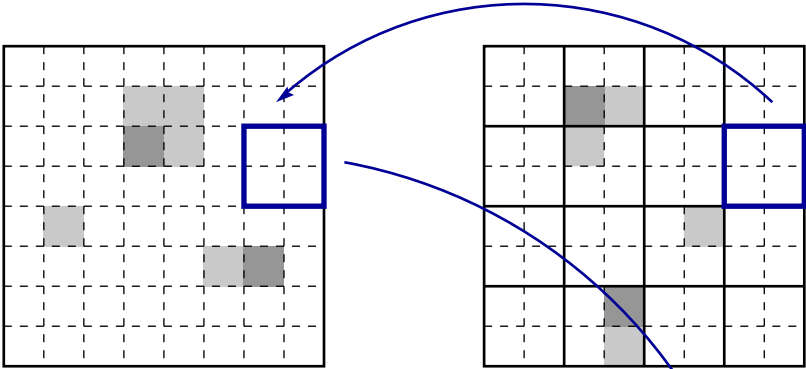
(0, 0)	(-1, 0)	(-1, 0)	(0, 0)
(0, 0)	(-2, 0)	(-1, 0)	

Motion vectors



Prediction frame

MB # 8

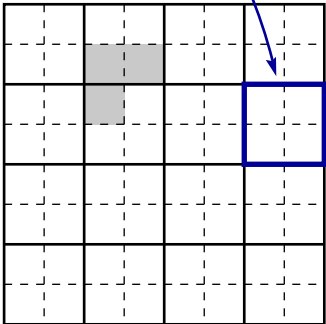


Reference frame

Current frame

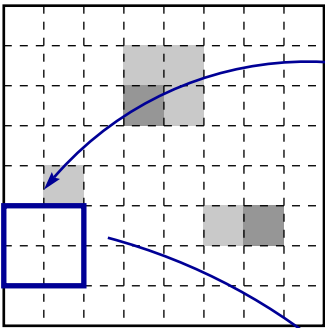
(0, 0)	(-1, 0)	(-1, 0)	(0, 0)
(0, 0)	(-2, 0)	(-1, 0)	(0, 0)

Motion vectors

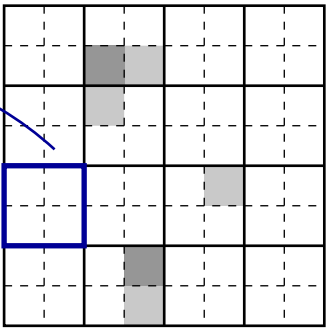


Prediction frame

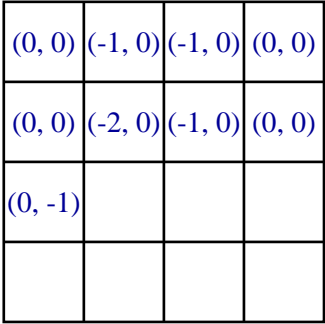
MB # 9



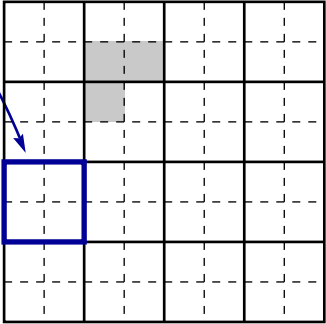
Reference frame



Current frame

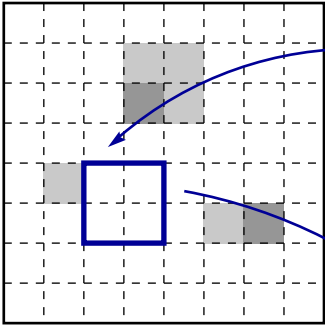


Motion vectors

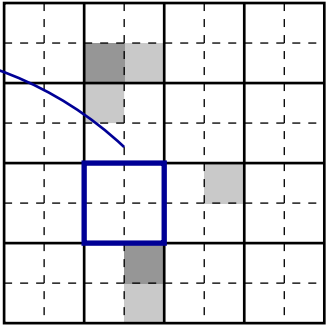


Prediction frame

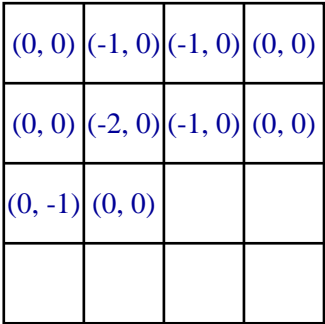
MB # 10



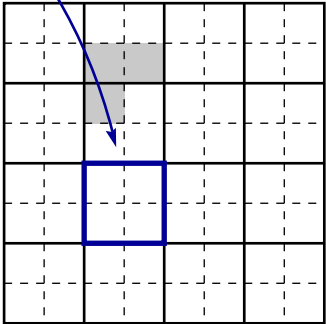
Reference frame



Current frame

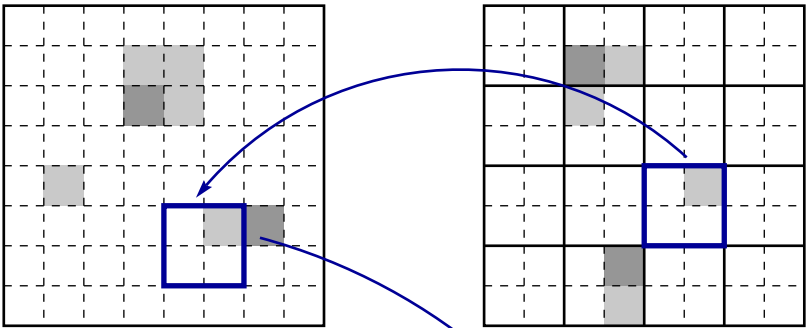


Motion vectors



Prediction frame

MB # 11

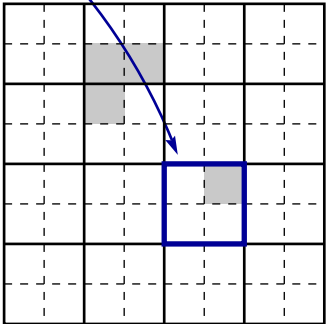


Reference frame

Current frame

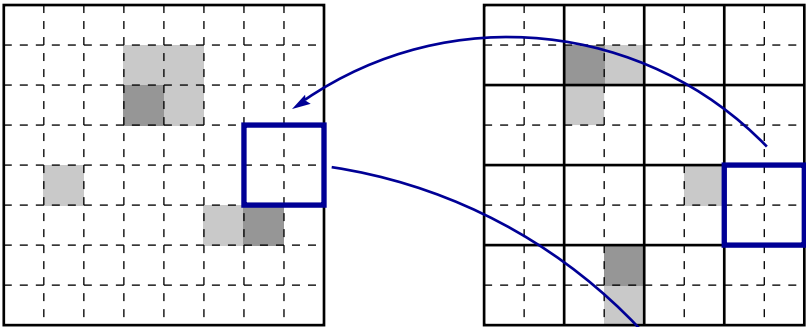
(0, 0)	(-1, 0)	(-1, 0)	(0, 0)
(0, 0)	(-2, 0)	(-1, 0)	(0, 0)
(0, -1)	(0, 0)	(0, -1)	

Motion vectors



Prediction frame

MB # 12

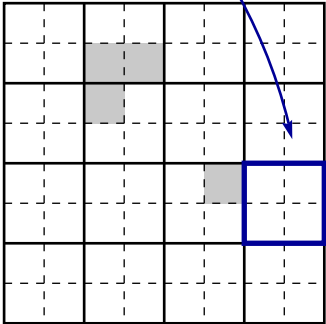


Reference frame

Current frame

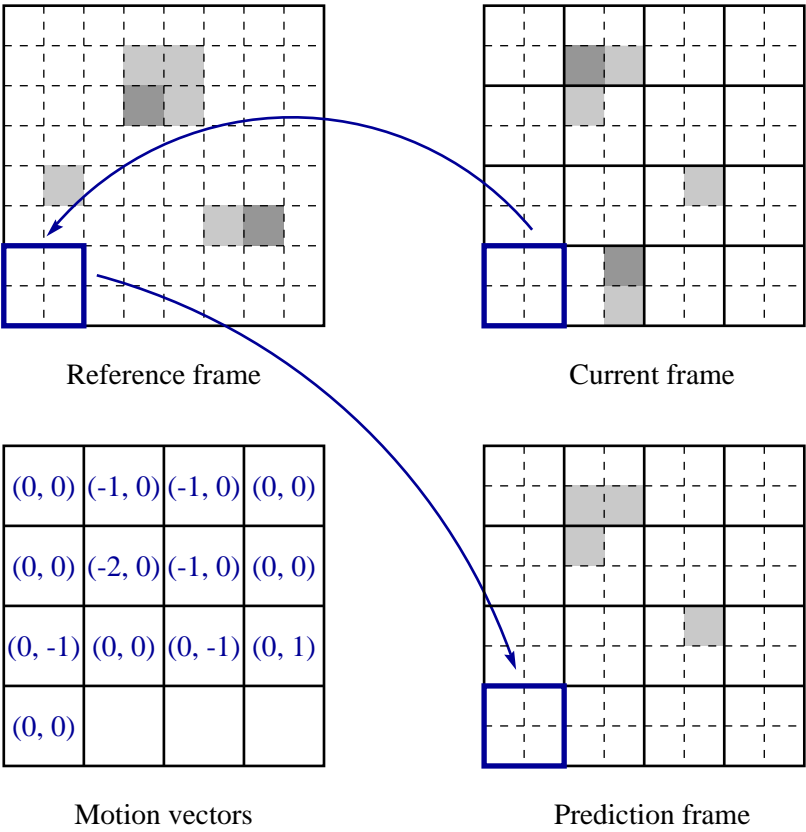
(0, 0)	(-1, 0)	(-1, 0)	(0, 0)
(0, 0)	(-2, 0)	(-1, 0)	(0, 0)
(0, -1)	(0, 0)	(0, -1)	(0, 1)

Motion vectors

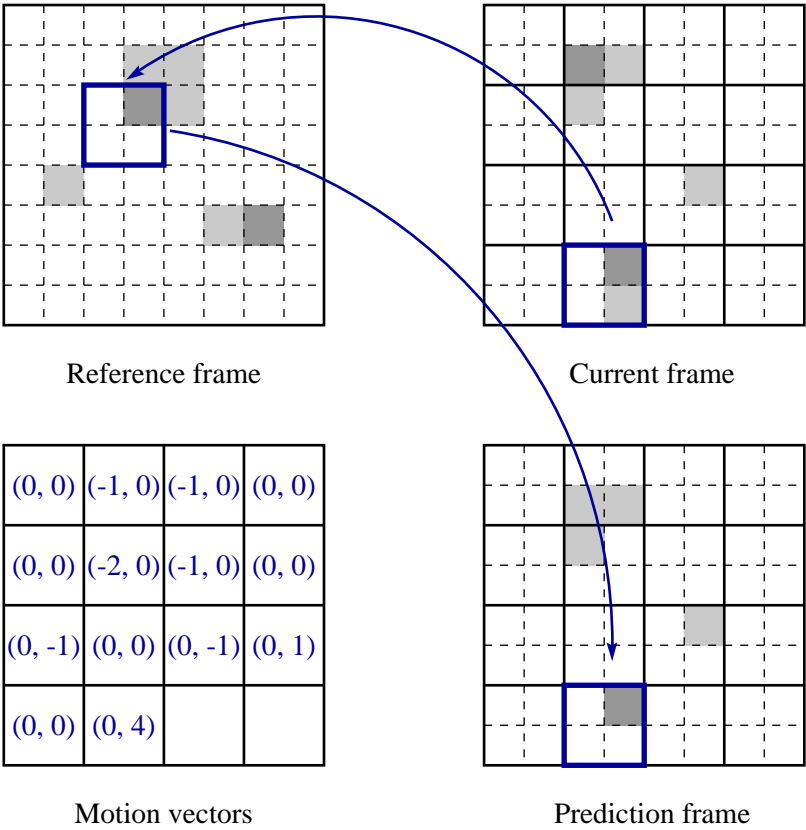


Prediction frame

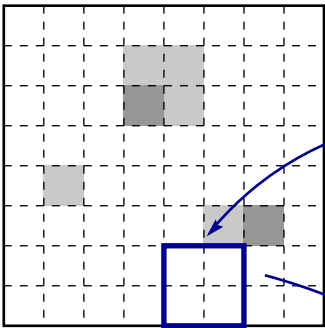
MB # 13



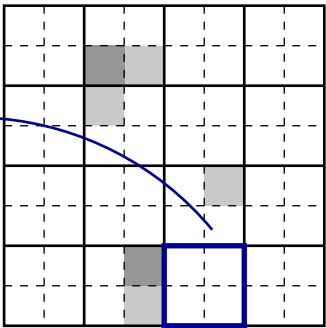
MB # 14



MB # 15



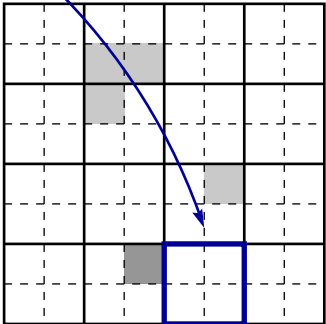
Reference frame



Current frame

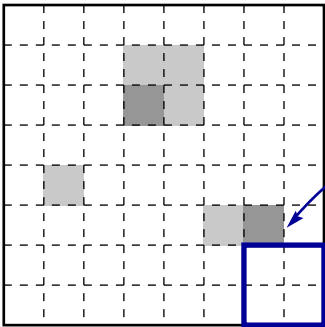
(0, 0)	(-1, 0)	(-1, 0)	(0, 0)
(0, 0)	(-2, 0)	(-1, 0)	(0, 0)
(0, -1)	(0, 0)	(0, -1)	(0, 1)
(0, 0)	(0, 4)	(0, 0)	

Motion vectors

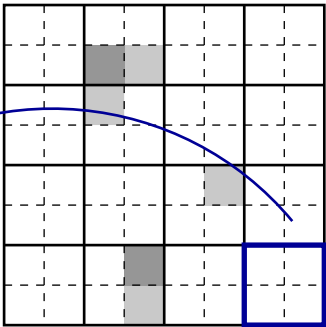


Prediction frame

MB # 16



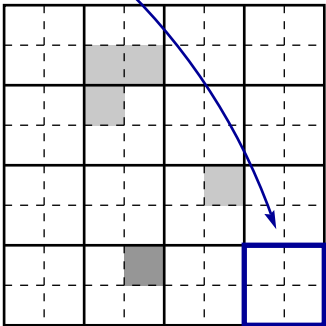
Reference frame



Current frame

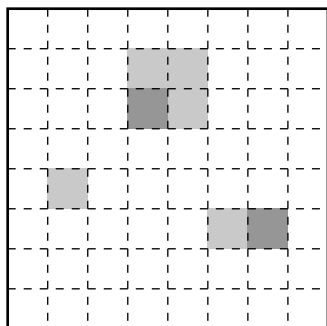
(0, 0)	(-1, 0)	(-1, 0)	(0, 0)
(0, 0)	(-2, 0)	(-1, 0)	(0, 0)
(0, -1)	(0, 0)	(0, -1)	(0, 1)
(0, 0)	(0, 4)	(0, 0)	(0, 0)

Motion vectors

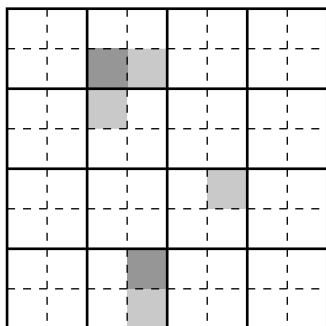


Prediction frame

The final prediction frame and motion vector field are as shown



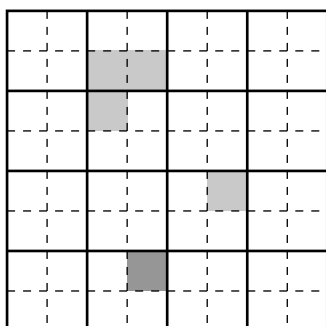
Reference frame



Current frame

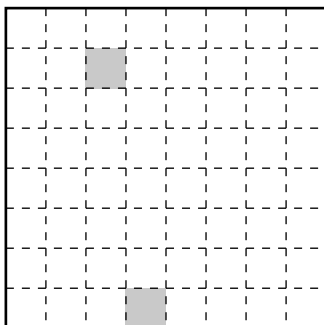
(0, 0)	(-1, 0)	(-1, 0)	(0, 0)
(0, 0)	(-2, 0)	(-1, 0)	(0, 0)
(0, -1)	(0, 0)	(0, -1)	(0, 1)
(0, 0)	(0, 4)	(0, 0)	(0, 0)

Motion vectors



Prediction frame

3. The difference frame is obtained as the difference between the current frame and the prediction frame. This difference frame will be coded as an image and transmitted to the decoder. The motion vectors will also be transmitted to the decoder.



Difference frame

4. This difference frame will be coded as an image and transmitted to the decoder. The motion vectors will also be transmitted to the decoder.